transmission of light as well as both the diffuse and specular reflective light components. Specifically, as defined at page 14 of the present specification, this value is calculated by the following equation:

Visual clarity factor = Specular transmission – (diffuse transmission only + total reflectance).

The resistance to denting, or durability, of the inventive screen is defined in the claims in terms of macroscopic permanent deformation, which is defined at page 20 of the instant specification as a physical change to the planarity of the insect screen fabric observable by the unaided eye and which remains in the insect screen until an additional external force is applied.

The surprising results achieved by applicant's invention are undeniable. Attached hereto is a Declaration of Thomas F. Klobucar, a market research consultant. Mr. Klobucar conducted a survey of consumer reactions to the insect screen invented by applicants and defined in the claims of this application (the "Gore Screen" referred to in the Declaration). The survey involved over 60 people and specifically gauged their reactions to the visual effects of the insect screen and to the durability of the screen. As reported at paragraph 6 of the Declaration,

> it is difficult to overstate the excitement the transparency of the Gore Screen caused. Comments like 'amazing' and 'unreal' were typical. Other specific comments about transparency included 'unbelievable' and 'incredible.' The transcriber, unable to make out some specific words when the Gore Screens were introduced, described participants as making 'sounds of awe.'

Such reactions certainly indicate surprising and unexpected results.

Mr. Klobucar's Declaration also reports the reactions to the durability of the insect screen at paragraph 7: "The participants also found the Gore Screens to be surprisingly durable and dent resistant. Participants handled the screens, scratched, poked, prodded, and banged them, and many

volunteered that the Gore Test Screens were, in fact, stronger than the current market screens."

All 60 of the pending claims have been rejected over the combination of U.S. Patent No. 5,139,076 ("Langdon") and U.S. Patent No. 2,333,618 ("Strauss"). Applicants respectfully traverse this rejection.

Langdon is directed to an insect screen that is essentially totally transparent and free of distortions. (Col. 1, lines 8-9.) Langdon reflects the view that screens using opaque stands have "significant attenuation and distortion of light passing therethrough." (Col. 1, lines 14-15.) Accordingly, Langdon attempts to produce a distortion-free screen using clear strands. With reference to Figure 2 of Langdon,

> In order for the screen to function in the desired fashion, the output beam 32 must be essentially of the same magnitude as the input beam 30 in order to prevent attenuation. Additionally, the characteristics of the input beam and output beam 30 and 32, must be essentially identical in direction, width and magnitude as the input beam in order to prevent distortion. (Col. 2, lines 8-14.)

No further detail is given as to how to produce a fiber that will actually demonstrate this behavior of allowing incoming light beams to pass directly through without refraction, as shown in Figure 2, to produce an output beam that is "identical in direction, width and magnitude." Applicants know of no material that would demonstrate this behavior. Langdon states that these results are achieved using conventional optic fibers such as glass and "essentially clear distortion free plastic." (Col. 2, lines 17-18.) This is simply not possible given the geometry of the fiber. Light will be refracted in the fiber (even if it is clear) and emerge at different angles than it entered. This is necessarily true unless the fiber has been somehow engineered to compensate for the refraction angles. No details of such engineering are presented in Langdon. Applicants submit that round glass fiber strands would actually refract light beams impinging on the surface thereof and are unaware of any essentially clear distortion free plastic.

So the exact teaching of Langdon is unclear. It is clear that the reference is silent as to total light transmission as such. There is also no mention of reflectance and glare, which is significant with clear fibers. It is also silent as to fiber diameter. It does not teach any construction details, such as mesh size. In the absence of any teaching of such details, and particularly in the absence of a teaching of any material that would satisfy its distortion-free properties, it cannot be fairly stated that Langdon teaches, expressly or inherently, any light properties that bear on Applicant's claimed total light transmission and visual clarity factor. As stated in the Official Action, Langdon is also silent as to any strength or durability requirements for its screen, much less any recognition of the need for addressing same.

Strauss discloses a screen made of certain plastic materials. The object of his disclosure is to provide a screen material that substitutes for metallic or textile mesh. (Col. 1, lines 12-13.) The materials he specifically suggests using are cellulose acetate, polymerized vinyl acetate, polymerized vinyl chloride or their copolymers. (Col. 2, lines 14-16.) Vinylidine chloride is preferred. (Col. 2, lines 20-21.)

The Official Action contends that it would have been obvious to one skilled in the art to use the vinylidine chloride of Strauss in the insect screen of Langdon for the purpose of increasing the strength requisites of the screen because Strauss reports the tensile strength of vinylidine chloride to be between 30,000 to 60,000 psi.

Applicants have invented an insect screen that is free of macroscopic permanent deformation. This durability feature is not directly related to tensile strength, as is assumed in the Official Action. Stainless steel has a tensile strength much higher than vinylidine chloride (85,000 to 95,00 psi according to Mark's Standard Handbook for Mechanical Engineers (see attached)), and yet screens made of stainless steel do not have close to the resistance to macroscopic permanent deformation defined in the present claims (see Comparative Examples 5 and 6 of the present specification). So even if one were to make the asserted combination of references, applicants' claimed durability is not taught or suggested, much less provided expressly or inherently, by such combination. Moreover, Strauss, like

Langdon, is silent as to fiber size, mesh density, and specific materials claimed by applicants. These features are all critical parts of applicants' invention to the extent they produce the surprising visual and durability properties that are claimed.

In sum, the asserted combination does not provide teachings that would allow one skilled in the art to produce applicants' claimed invention. Reconsideration of all claims is respectfully requested.

In particular, many of the claims are independently patentable. Claims 6, 7, 36, 37, and 57-60 all define fiber size. No suggestion is given in the references of the need to specify fiber size. The fiber size is critical to applicants' invention in that it is one of the features that produces the surprising visual effects of the invention.

Claims 8, 9, 38, 39, and 57-60 all define fluoropolymers, and particularly PVDF. A factor that can affect screen durability is ultraviolet (UV) degradation, typically caused by sunlight exposure. It is known that most non-metallic fibers will degrade and lose strength after a few years of sunlight exposure due to UV degradation. PVC coated fiberglass screens exhibit this degradation with the PVC coating turning white and flaking off. It can be desirable to use non-metallic fibers as a screen material, but it becomes challenging to meet durability expectations if small fibers are used. Small diameter fibers already can be weaker in breakstrength than larger diameter fibers and with further UV degradation the fiber can fail prematurely. With these limitations, it is challenging for small diameter non-metallic insect screens to meet the typical industry expectations for lifetimes of five to ten years or more.

A novel aspect of the present invention is that in a preferred embodiment it incorporates the use of fluoropolymer fibers as the primary fiber for woven insect screen. Fluoropolymers offer a unique advantage for this application since they typically have extremely low UV light absorption, which enables the material to remain virtually unaffected when exposed to these often harmful wavelengths. One of the preferred fluoropolymer fiber materials of this invention is PVDF. This material is readily melt processible

thereby enabling fibers of uniform small diameters to be cost effectively fabricated. This material is also one of the stronger fluoropolymer materials thus offering enhanced durability. Also, this material can be bonded to itself through various bonding techniques thus being able to produce a preferable insect screen fabric where a substantial number of the fibers are bonded at their intersection points for improved stability.

Claims 11, 13, 41, and 43 define screens wherein the fibers are opaque or dark in color. Significantly, as discussed above, Langdon specifically teaches away from opaque fibers. His teaching is clearly not appropriately applied against these claims.

Accordingly, in light of the foregoing remarks, reconsideration and allowance of the claims of the instant application are respectfully requested.

Respectfully submitted,

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